

National Association for State Community Services Programs



WINTER TRAINING CONFERENCE

April 3 – 7 | Arlington, VA

**MISSION POSSIBLE**

**Restoring Hope**

**WAP Technical Management**

[www.nascsp.org](http://www.nascsp.org)



# SCEP

STATE & COMMUNITY ENERGY PROGRAMS

# WEATHERIZATION ASSISTANCE PROGRAM

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WAP Technical Management Session  
2023 NASCSP Winter Training Conference  
April 2023



# Overview

- How we got here
- Technical Management Areas
  - Energy Audits and Priority Lists
  - Standard Work Specifications (SWS) & Field Guides
  - Trainings & Certifications
  - Inspections & Monitoring
- Discussion

# How we got here



# Why have a Quality Work Plan?

Shoddy Work Found in \$22.3 Million  
Federal Contract to Fix Up Low Income  
Homes

Energy Efficiency Work  
Leaves Homeowner Cold



Stimulus Weatherization Contract  
Halted:  
Subpar Work Found Statewide

# What is the Quality Work Plan?

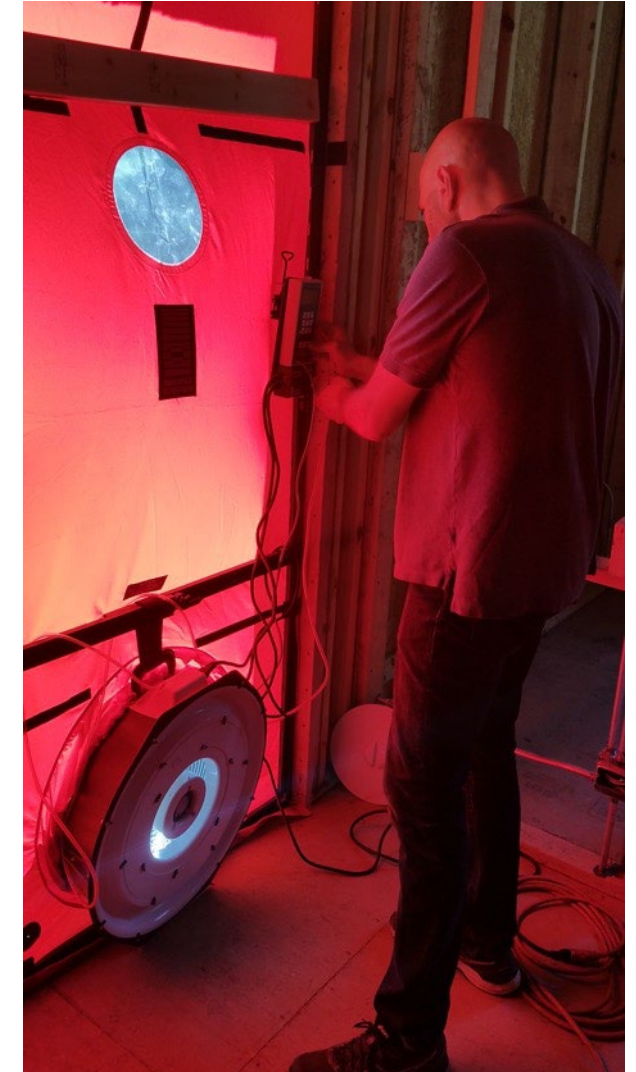


- Standard Work Specifications
  - Field Guides
- Training and Certifications
  - Home Energy Professional Occupations
  - Accredited Training
- Inspections and Monitoring

Resources: [WPN 22-4](#) (released 12/13/21)

# What is an Energy Audit?

- Energy Audit is an assessment of the energy needs and efficiency of a building or buildings.
- Electronic Energy Audit: A software tool that applies engineering and economic calculations to an energy audit to assist users in the selection of Energy Conservation Measures (ECM)...
  - (in WAP) that meet government criteria for cost-effectiveness.
  - that can be installed in homes of low-income families enrolled in the Program.
- A DOE approved WAP energy audit is used to select and rank ECMs for individual houses, or to establish a priority list of weatherization measures for nearly identical housing types.



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# Energy Audits and Priority Lists - Requirements

All Grantees must have Single Family & Manufactured Housing approved Energy Audits.  
Priority List approvals are secondary to Energy Audit approvals.



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# Energy Audits – Submittal Basics

1. A formal request letter from the Grantee to DOE for approval of the specific audit tool for use in the WAP program, including the dwelling type it will be used for.



# Energy Audits – Submittal Basics

2. A complete list of all measures considered by the audit for installation as Energy Conservation Measures (ECMs) including:

- Lifespans used to analyze the cost-effectiveness of each installed measure
- Discount rate used in future savings estimate
- Statement of compliance with 10-CFR 440 Appendix A
- Any Special Materials Requests as outlined in WPN 23-6, [Attachment 6](#)



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# Energy Audits – Submittal Basics

3. Any Special Audit Procedure requests (e.g., Grantee administered fuel-switching, solar photovoltaics (solar PV), Social Cost of Carbon, etc.)

4. Fuel cost for all fuel types considered by the audit, including the Grantee's procedure for updating fuel costs.



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# Energy Audits – Submittal Basics

5. A list of items to be installed as General Heat Waste (GHW) measures (if any).

6. Energy Audit Policies and Procedures, including:

- a. Field operations manual
- b. Field data collection forms
- c. Combustion safety protocols
- d. Ventilation calculator
- e. Health and Safety plan
- f. Energy audit software user's manual
- g. Technical standards for energy auditors



# Expedited Energy Audits for WAP

	Single Family (1-4 units)	Manufactured Housing	Low-Rise Multifamily (5+units, 3 stories or less, No central mechanical systems)	Large Multifamily (25+ units/building of 4 stories or more, or 5+ units/building with central mechanical systems)
<b>OptiMiser</b>	Developer: OptiMiser LLC, Denver, CO			
	YES	YES	NO	NO
<b>REM</b>	Developer: NORESCO, LLC, Boulder, CO			
	YES	YES	YES	YES
<b>TREAT</b>	Developer: Performance Systems Development (PSD), Ithaca, NY			
	YES	YES	YES	YES
<b>Weatherization Assistant (NEAT, MHEA, MulTEA)</b>	Developer: Oak Ridge National Laboratory (ORNL), Oak Ridge, TN			
	NEAT approved	MHEA approved	NEAT and MulTEA approved only for buildings with individually heated and cooled dwelling units	MulTEA approved only for buildings with individually heated and cooled dwelling units
<p>“YES” means that the audit tool has been previously approved for this housing type  “NO” means that the audit tool has not been previously approved for this housing type or that it is not designed for this housing type</p>				

WPN 23-6 removed the list of “Standard Audits” previously contained in Attachment 4. Attachment 3 contains energy audit tools that currently qualify for the “expedited review process”.

Expedited software tools must be independent third-party verified for energy modeling accuracy and be currently approved for usage on DOE WAP projects for a WAP Grantee.

Any tool not in Attachment 3 do not qualify for the expedited energy audit review process.

# Standard Energy Audits – Additional Submittals

**Standard Energy Audit tool submission requires all the basics in addition to:**

- **Analytic Methods**
  - Energy Estimating Methodology, including but not limited to:
    - Energy Estimating Method
    - Climate data format
  - Measure Interaction
    - Description of how the tool accounts for between architectural and mechanical measures and provide audit results of sample dwelling unit to show interacted and non-interacted energy savings and SIR.
  - Cost-effectiveness clarification, including:
    - SIR calculations and measure priority
    - User-defined measures
    - Incidental Repair Measure (IRM) treatment

# Priority List Submittals

- Grantees requesting approval of any Priority List (PL) must submit all information described in [WPN 23-6, Attachment 2](#).
- PL submittals will only be considered for approval if the Grantee has an unexpired audit approval for the housing type in question.
- **Priority Lists must evaluate energy costs, measure implementation costs, technological advancements, and best weatherization practices no less frequently than annually to ensure the approved Priority List remains effective and appropriate**
  - When fuel, material, or labor costs are changing rapidly or significantly, more frequent evaluations are strongly recommended.

# Energy Audit/Priority List Resources

- [WPN 23-6](#), released 3/3/2023
  - [WPN 23-6 Attachments](#)
  - [WPN 23-6 Attachment 6 – Request for Special Approval of Energy Conservation Material](#)
  - [Optional Fuel Switching Policy Template](#)
  - [Optional Solar PV Initial Request Template](#)



# Standard Work Specifications (SWS)

- Consistent national standards
- Ensures work is effective, durable and safe
- Consensus-based
- Maintained and regularly updated on a 5-year cycle

## Standard Work Specifications



HOUSING TYPE ▾ Search

Health & Safety ▾ Air Sealing ▾ Insulation ▾ Heating & Cooling ▾ Ventilation ▾ Baseload ▾ About [Help](#) [Log in](#) [Español](#)

Use the Standard Work Specifications (SWS) tool as an industry guide to ensure work performed during home energy upgrades is effective, durable, and safe.



<https://sws.nrel.gov/>

### Maintenance Cycle Status

- ✓ Year 1
  - ✓ Year 2
  - Year 3
  - Year 4
  - Year 5
- Review public comments received in Year 1 and 2. Redline version will be released and will inform users of planned changes, based on public comments received.
- Deadline:** Sept. 30, 2023
- Learn More:**  
[How SWS are maintained](#)

### Introduction to Tool

[How to use the SWS](#)  
[SWS Tutorial: SWS Update](#)

- 5-year approval cycle.
- Must align with SWS.
- Grantees must now submit their field guides for DOE review 6 months prior to the expiration date of their currently approved guide (per WPN 22-4).
- Must be available to your entire network.



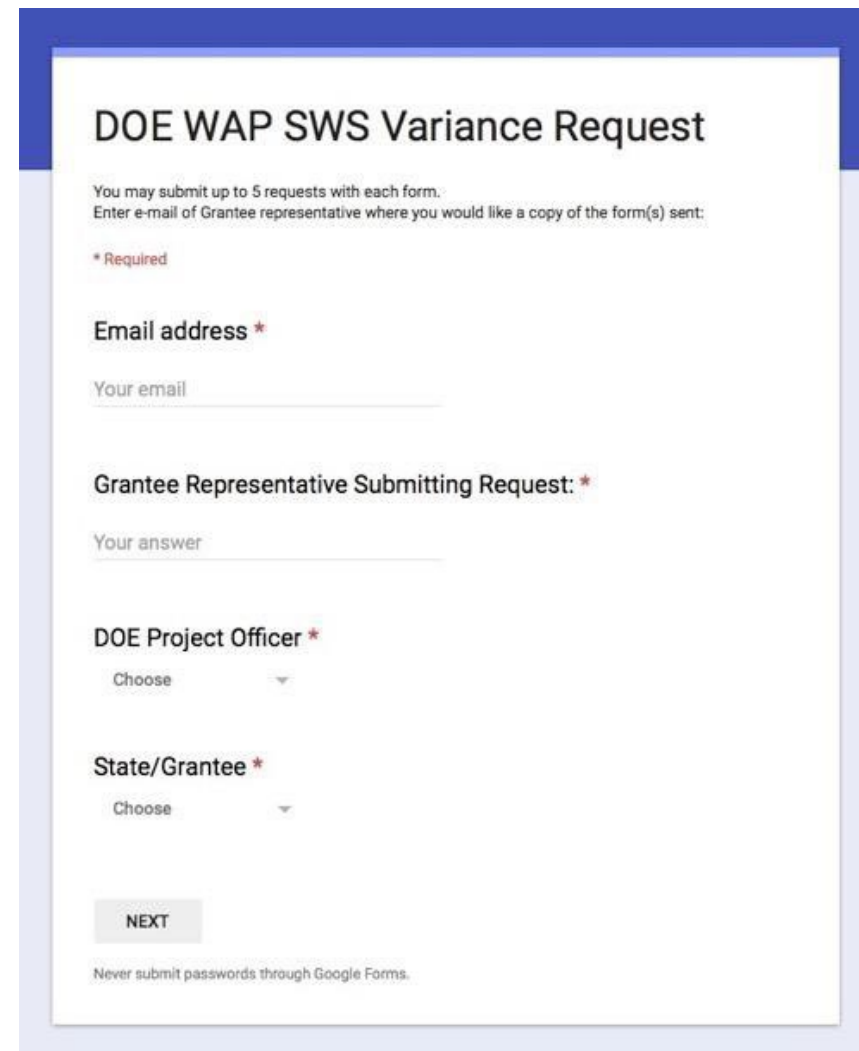
# Field Guides – SWS and Variance Requests

## A Conundrum:

- Field guides must align with the SWS.
- Sometimes the SWS doesn't work for you.

## The solution:

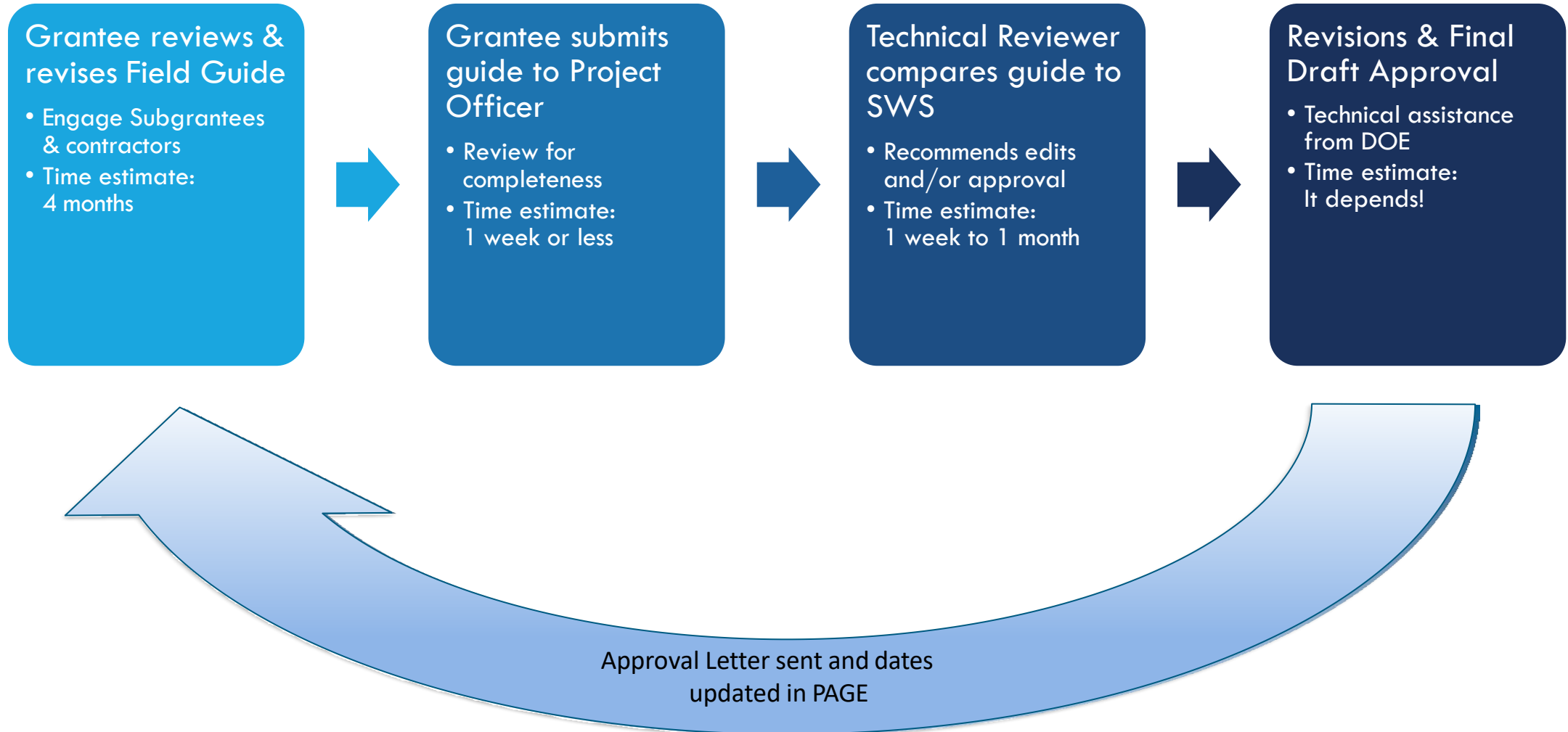
- [Submit a Variance Request](#)



The screenshot shows a Google Form titled "DOE WAP SWS Variance Request". The form includes the following elements:

- Title:** DOE WAP SWS Variance Request
- Instructions:** You may submit up to 5 requests with each form. Enter e-mail of Grantee representative where you would like a copy of the form(s) sent:
- Required Field:** \* Required
- Email address \*:** A text input field with the placeholder "Your email".
- Grantee Representative Submitting Request: \*:** A text input field with the placeholder "Your answer".
- DOE Project Officer \*:** A dropdown menu with the placeholder "Choose".
- State/Grantee \*:** A dropdown menu with the placeholder "Choose".
- Next Button:** A button labeled "NEXT".
- Footer:** Never submit passwords through Google Forms.

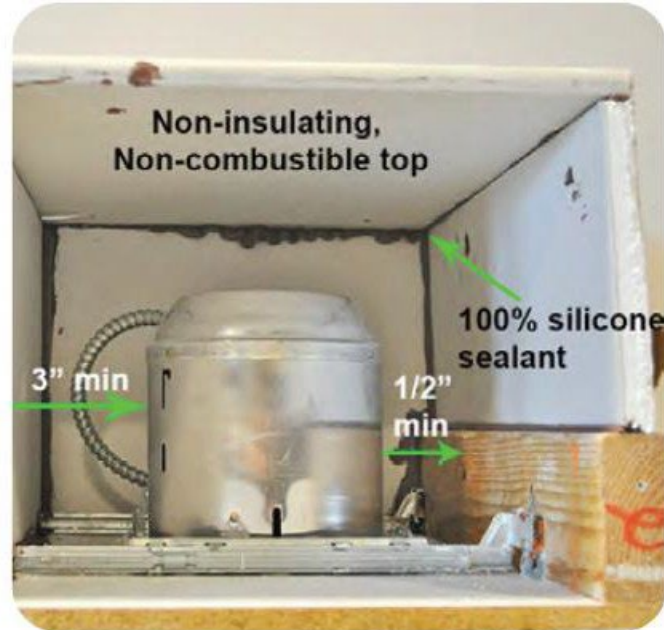
# Field Guide Review Process



# Field Guide Sample – Non-IC Can Lights



- 1.** Clear any debris from around non-IC-rated can light



- 2.** Enclosure has 3 inches of clearance from lamp to insulation on all sides, at least 1/2 inch from any combustible material, such as wood



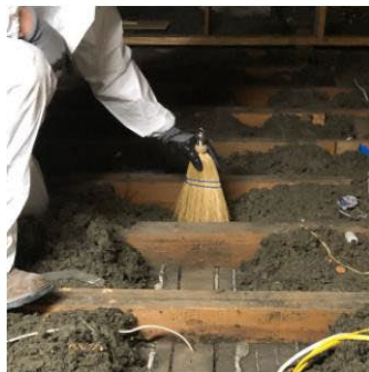
- 5.** Top of box must be R-1 or less and left free of insulation. Flag enclosure for added visibility

# Field Guide Sample – Attic Air Sealing



## 1. Remove existing insulation

- Remove existing insulation as



## 2. Remove dust and debris

- Sweep or vacuum away any dust



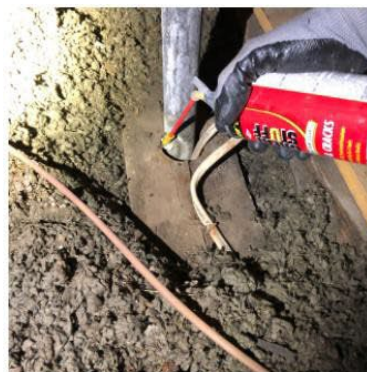
## 3. Seal all top plates

- Seal with caulk or one part foam to ensure proper adhesion.



## 4. Seal electrical penetrations

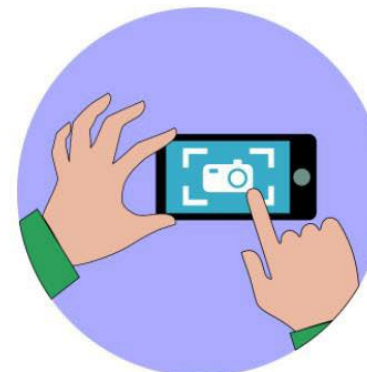
- Seal with caulk or one part foam to



## 5. Seal plumbing vent stacks

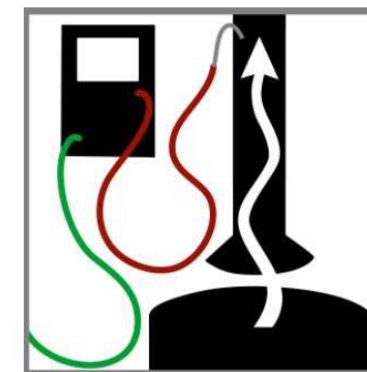


## 6. Air seal chases, drop soffits



## 7. Photograph work

- Take photos of all work that is not easily accessible or that will be

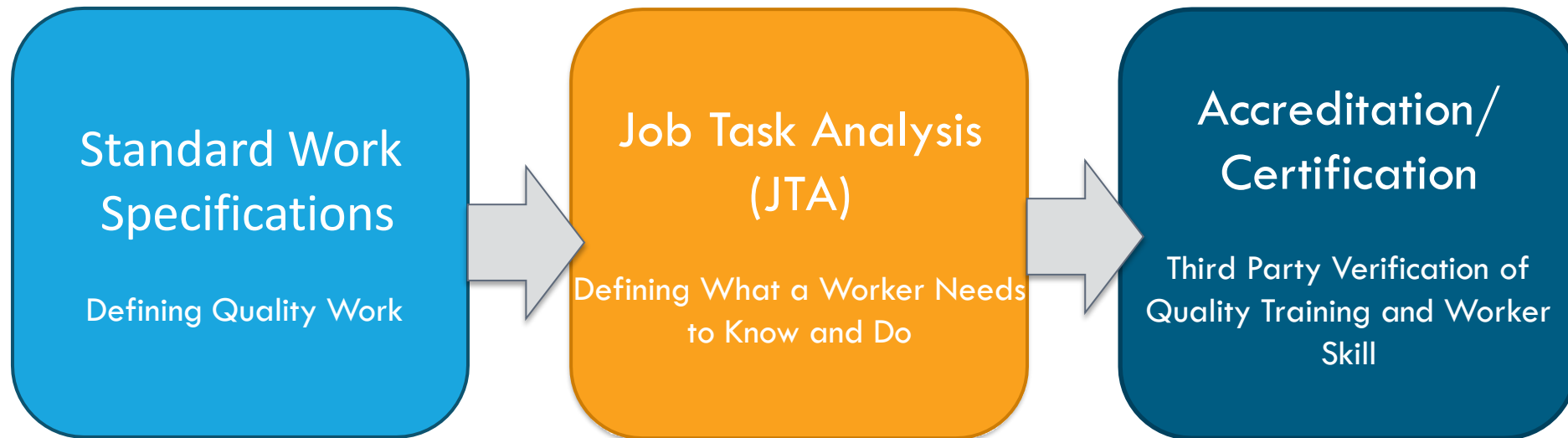


## 8. Worst Case Draft Test

# Field Guides | Where to Learn More

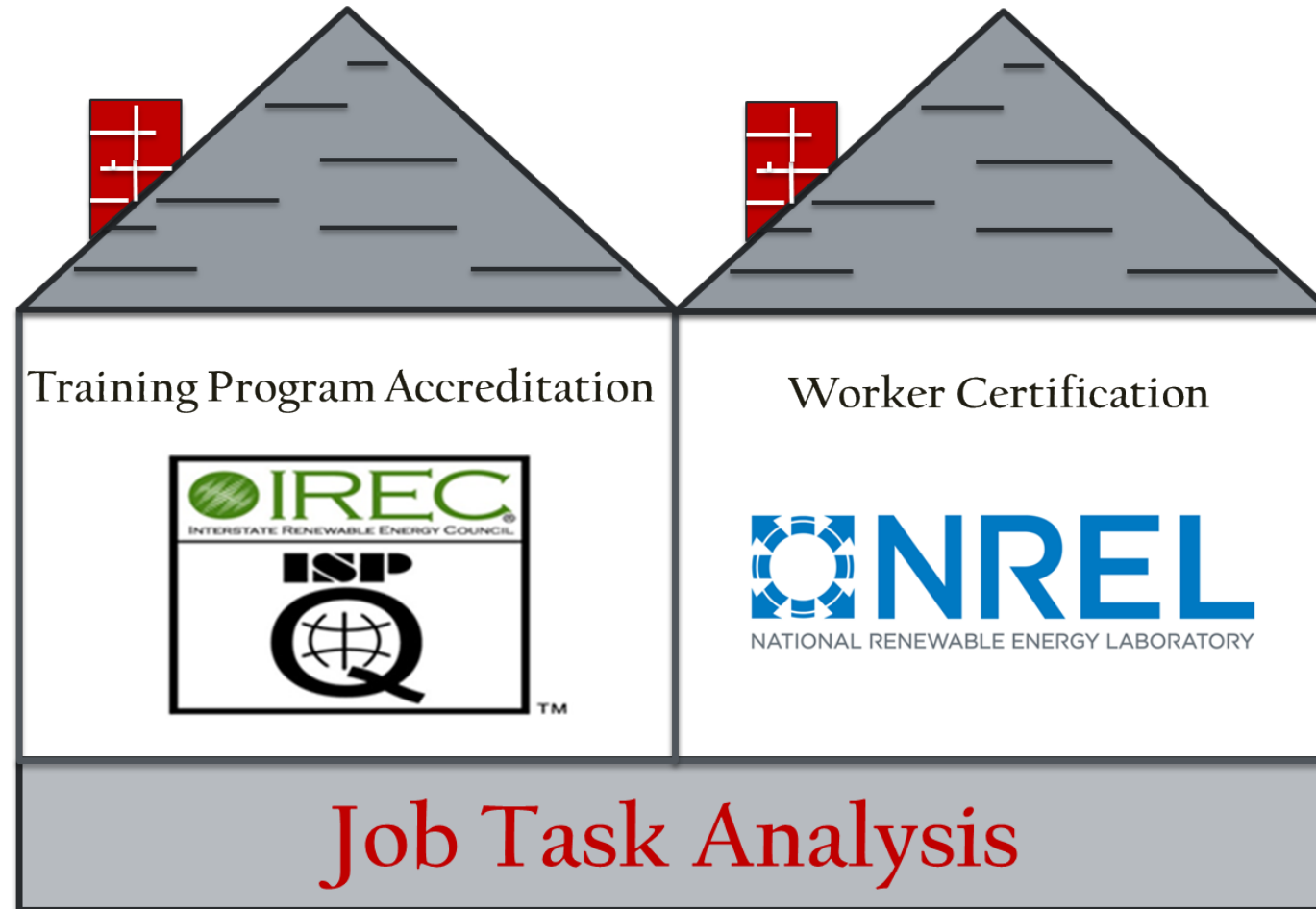
- [WPN 22-4, Section 1](#) – Describe SWS alignment and distribution requirements
- [WPN 22-4: Quality Work Plan Requirement Update](#) Training Video
- State Plan Section V.5.1 – Technical Guides and Materials
- WAP Training Resources:
  - [SWS tool navigation training](#)
  - [Field Guide and Variance Request Review Process webinars](#)
- SWS - <https://sws.nrel.gov>
- [Variance Request Form](#)

# Training – How the pieces fit together





# JTA is the Foundation



# Training – Basic Requirements

- Analysis of training needs
- Plan to meet those needs
- Comprehensive training on Grantee-determined schedule
  - [Accredited training providers](#)
- Specific training on as-needed basis

## Resources:

- [Annual Application Instructions](#) - Master File V.8.4
- [WPN 22-4](#)
- [WAP Memos](#) 34, 36, 50
- [RFP Toolkit](#)

# Comprehensive Training Definition

- Home Energy Professional occupation.
  - Retrofit Installer/Crew Lead
  - Energy Auditor/Quality Control Inspector
- Aligned with Job Task Analysis (JTA) for occupation.
- Administered by, or in cooperation with, accredited training center.



# Specific Training Definition

- Single-issue.
- Addressing deficiencies in the field.
- No federal requirements for training provider.
- Management, administrative, fiscal and conference trainings are considered Specific Training.



# If T&TA stood for Teeth and Tooth Aches

- Comprehensive is your regular bi-annual cleaning.
- Specific is the emergency visit when you break a tooth.



**Comprehensive**



**Specific**

# Training - Timeline

- Training Plans must ensure that all Weatherization field staff receives regular Comprehensive training.
- Each Grantee will decide on the regularity of training based on workforce needs and availability of funds.
- Tip: Use the [T&TA Planning and Reporting Template](#)
  - [T&TA Planning Tools Voluntary Templates Webinar](#)

# T&TA Planning and Reporting Template

	A	B	C	D	E	F	G	H	I	J	K
	Training Topic(s)	Training Requested or Initiated by?	Training Category	Comprehensive or Specific Training?	Job Task Analysis (JTA)	Scheduled Date(s) of Training?	Duration of Training (hours)?	Continuing Education Unit(s) Offered?	Training Center/Provider	Attendance Mandatory?	Estimated Costs
1											
28	Auditor	Program Requirement	Technical	Comprehensive	EA	Online with field prep and exams in person later in the year	36 online plus 2 days in person	36	Energy Smart Academy	Yes	\$30,000.00
29	Crew Leader	Program Requirement	Technical	Comprehensive	CL	Online	15	15	Energy Smart Academy	Yes	\$15,000.00
30	Peer Exchanges	Program Requirement	Programmatic	Specific			8	0	MFA	No	\$2,000.00
31	HVAC Training	Subgrantee Request	Technical	Specific		Online or in person TBA	8	4	Energy Smart Academy	No	\$4,000.00
32	2 CFR 200	Subgrantee Request	Financial	Specific			10	0		No	\$2,000.00
33	Cost Allocation	Program Requirement	Financial	Specific			10	0		No	\$2,000.00
34	Program Management	Program Requirement	Programmatic	Specific			10	0		No	\$2,000.00
35	Conferences	Subgrantee Request	Technical	Specific		September, 2021, January 2022, April 2022	126	Usually	NASCSP, BPA	No	\$20,000.00
36	Other Specific Training	Subgrantee Request	Technical	Specific		TBA	16	Depends on class	Energy Smart Academy	No	\$67,225.70

<https://www.energy.gov/eere/wap/downloads/training-and-technical-assistance-plan-template>

# Certifications

- 4 HEP Certifications available:
  - Energy Auditor (EA)
    - Micro-Credential Quality Control inspector (QCI)
  - Retrofit Installer/Technician (RIT)
    - DOE no longer maintains
  - Crew Leader (CL)
    - DOE no longer maintains
- 1 HEP Certification federally required:
  - Quality Control Inspector (QCI)





# Installer Badges Toolkit

Download the toolkit:

<https://sws.nrel.gov/installerbadges>

[Watch the Installer Badges Toolkit Video](#)

## Installer Badges



Job Task Analysis (JTA) and Standard Work Specifications

(SWS) are the underlying foundation for certification schemes and for the accredited training programs. The Retrofit Installer Technician tasks are the basis of the 25 Installer Badges. Examples include:

- Work Lead-Safe
- Air Seal Attic Floor
- Seal and Dam High-Temperature Heat Sources in Attic
- Prep Attic Floor for Insulation



# HEP Certifications – Where to Learn More

- BPI - <http://bpi.org/certified-professionals>
  - Includes application forms, prerequisites, exam fees, certification scheme handbooks, exam prep tips, and more, for each certification.
- JTAs that certifications are built on:
  - <https://energy.gov/eere/wipo/guidelines-home-energy-professionals-accredited-training#jta>
- [DOE WAP Standardized Training Curricula aligned with JTAs \(2.0 versions\)](#)
- [WPN 22-4: Quality Work Plan Requirement Update](#)

# Inspections & Monitoring

We've defined the work, now hold everyone to it.



# Inspections - Subgrantee

- Every DOE WAP unit reported as a “completed unit” must receive a final inspection ensuring that all work meets the minimum specifications outlined in the SWS in accordance with 10 CFR 440.
- Every client file must have a form that certifies that the unit had a final inspection and that all work met the required standards.
- The form must be signed by a certified QCI.



# Inspections – Grantee Monitoring

A minimum of 5% of completed units will receive a quality assurance review, performed by a certified QCI.

- If a Subgrantee staff person performs both the initial energy audit and the final QCI, then the Grantee will increase monitoring to at least 10% of completed units.

# Inspection & Monitoring Forms

- Do they align with your DOE approved Field Guides?
- Do they align with work orders?
- Do they account for missed opportunities?
- How often are they updated?
  - By whom?



# Inspection & Monitoring

## Master File V.5.3 Final Inspection

- Certification requirement.
- **Disciplinary actions.**

Grantees must ensure that all Subgrantee final inspections are performed by certified QCI as outlined in [WPN 22-4](#) and as stated in the DOE approved written Grantee Quality Control Inspection Policy.

- Grantees will provide a copy of relevant policies and procedures that will govern the quality control inspection process in accordance with [WPN 22-4, Section 2](#) and **outline disciplinary actions for inadequate inspection practices**. This should include a description of how the inspector is related to the work being done on the home (i.e., did they also complete the energy audit or are they an independent third-party?) as well as the percentage of homes that will be included in the Grantee monitoring process.

## V.5.3 Final Inspection – Disciplinary Actions



**Increased monitoring.**

**Additional training.**

**On the job  
training/mentoring.**

**MUST have mechanism for  
suspension and/or  
debarment.**



QUESTIONS?

Contact your WAP Project Officer

# APPENDICES

# Solar PV Pilot/Lifetime

- **Adoption of Solar PV is simplified – See [WPN 23-6, Attachment 4](#)**
  - Grantees no longer need to design and implement a series of pilot projects as part of the approval process.
  - DOE has provided a simplified request template to implement Solar PV in WAP projects.
- **Solar PV maximum lifetime – See [WPN 23-6, WPN Attachment 9](#)**
  - Analysis must use a 20-year lifetime for evaluation.
  - Grantees may propose lifetime changes with supporting information by submitting these to DOE for consideration

# SWS Example

## Specification Example: How the SWS Are Displayed

The SWS identify and define the desired outcome(s) of a particular energy efficiency measure, stated as objectives, and then list the minimum specifications needed to meet those outcomes, as shown below in the example below.

The screenshot shows a user interface for a Specification Work Sheet (SWS) titled "2.0101.1a Selection". The interface includes a blue header bar with a minus sign icon and the title. To the right of the title are three circular icons labeled "SF", "MH", and "MF". Below the header is a table with two columns: "Specification" and "Objective". The "Specification" column contains the text: "Hardwired (interconnected) smoke alarms shall be listed and labeled in accordance with [UL 217](#)". The "Objective" column contains the text: "Ensure proper equipment selection". To the right of the table is a "COMMENT" button with a downward arrow. Below the table, there are two callout boxes: one under the "Specification" column stating "The **Specification** defines the minimum level of action required to meet the **Objective**." and one under the "Objective" column stating "The **Objective** defines the required outcomes of the work.".

The Housing Type Icons identify which of the three housing types the specification applies to.

Users can Comment on the Specification to recommend changes.

**2.0101.1a Selection** (SF) (MH) (MF)

Specification	Objective
Hardwired (interconnected) smoke alarms shall be listed and labeled in accordance with <a href="#">UL 217</a>	Ensure proper equipment selection

COMMENT ▾

The **Specification** defines the minimum level of action required to meet the **Objective**.

The **Objective** defines the required outcomes of the work.

# SWS Numbering Scheme

